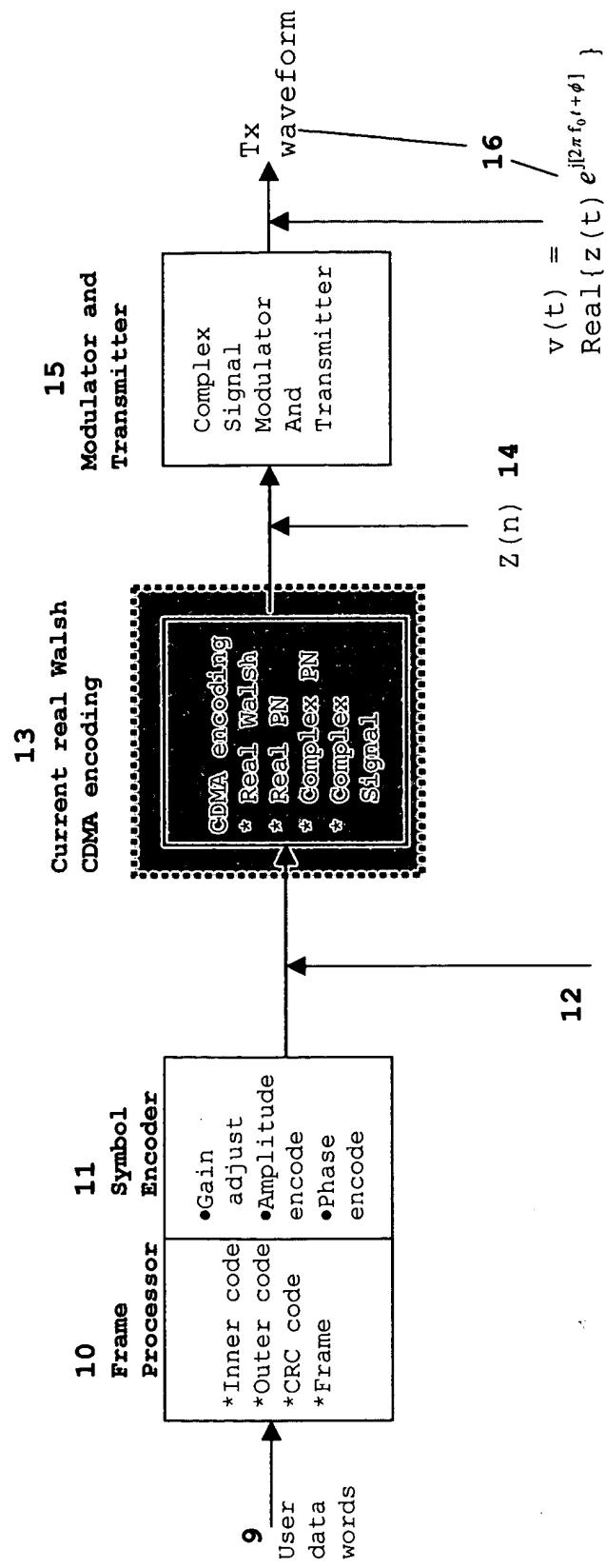




**FIG. 1A CDMA Transmitter: Block Diagram**



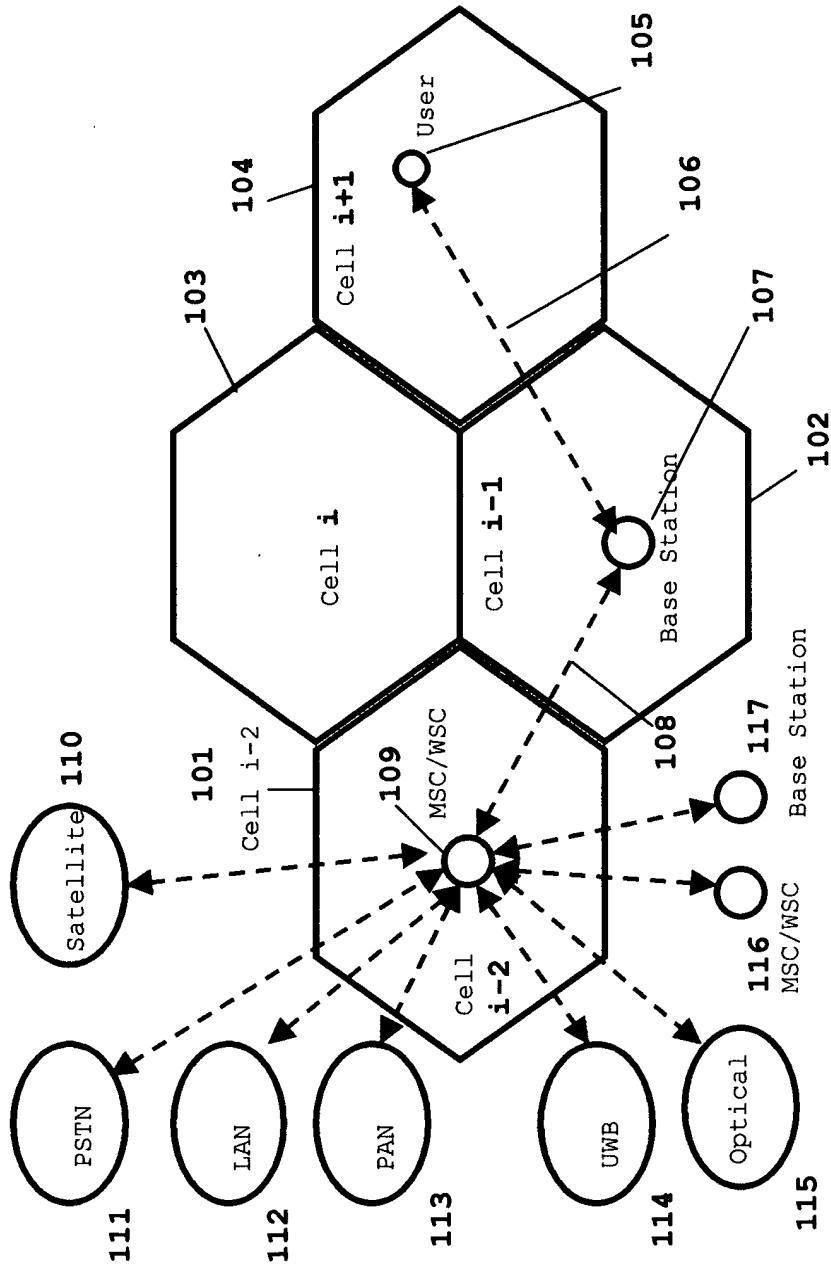
$$= \{Z(u)\} = R(u_R) + jI(u_I)\}$$

For complex data symbols  $u = u_R = u_I$

For real data symbols  $u = \text{index for counting the user pairs } (u_R, u_I)$

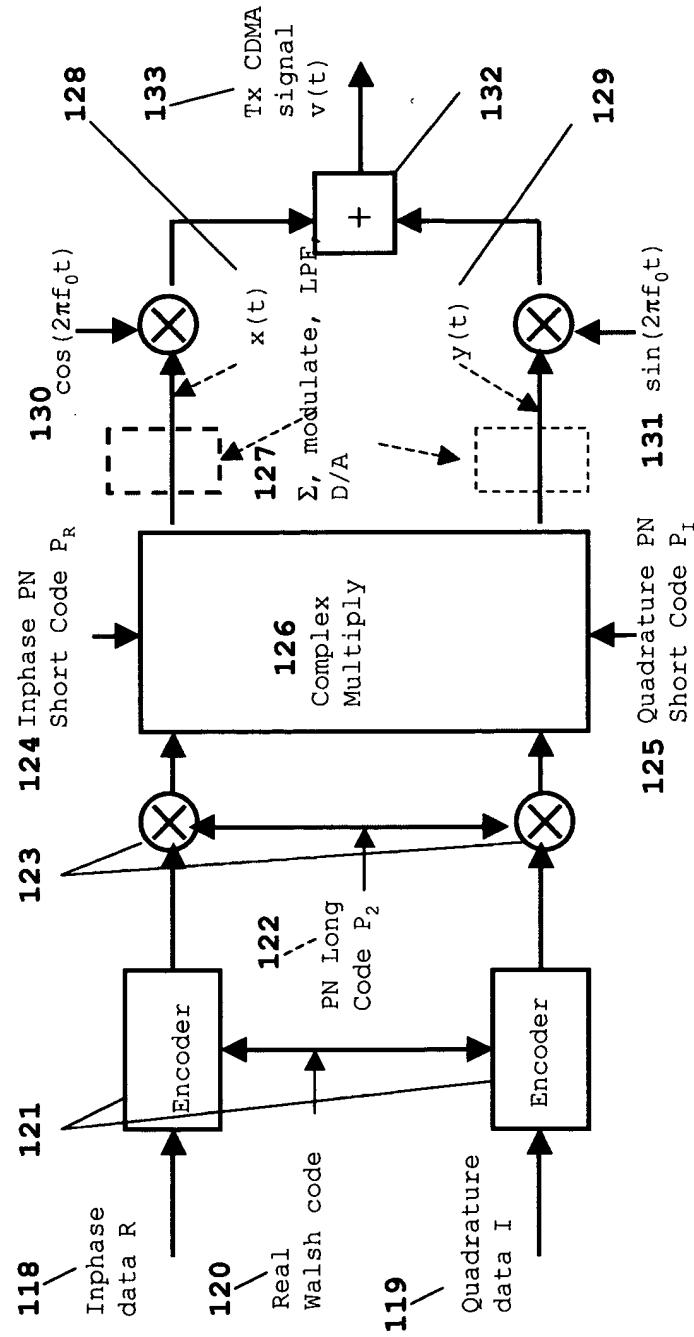


FIG. 1B CDMA Transmitter: Cellular Application



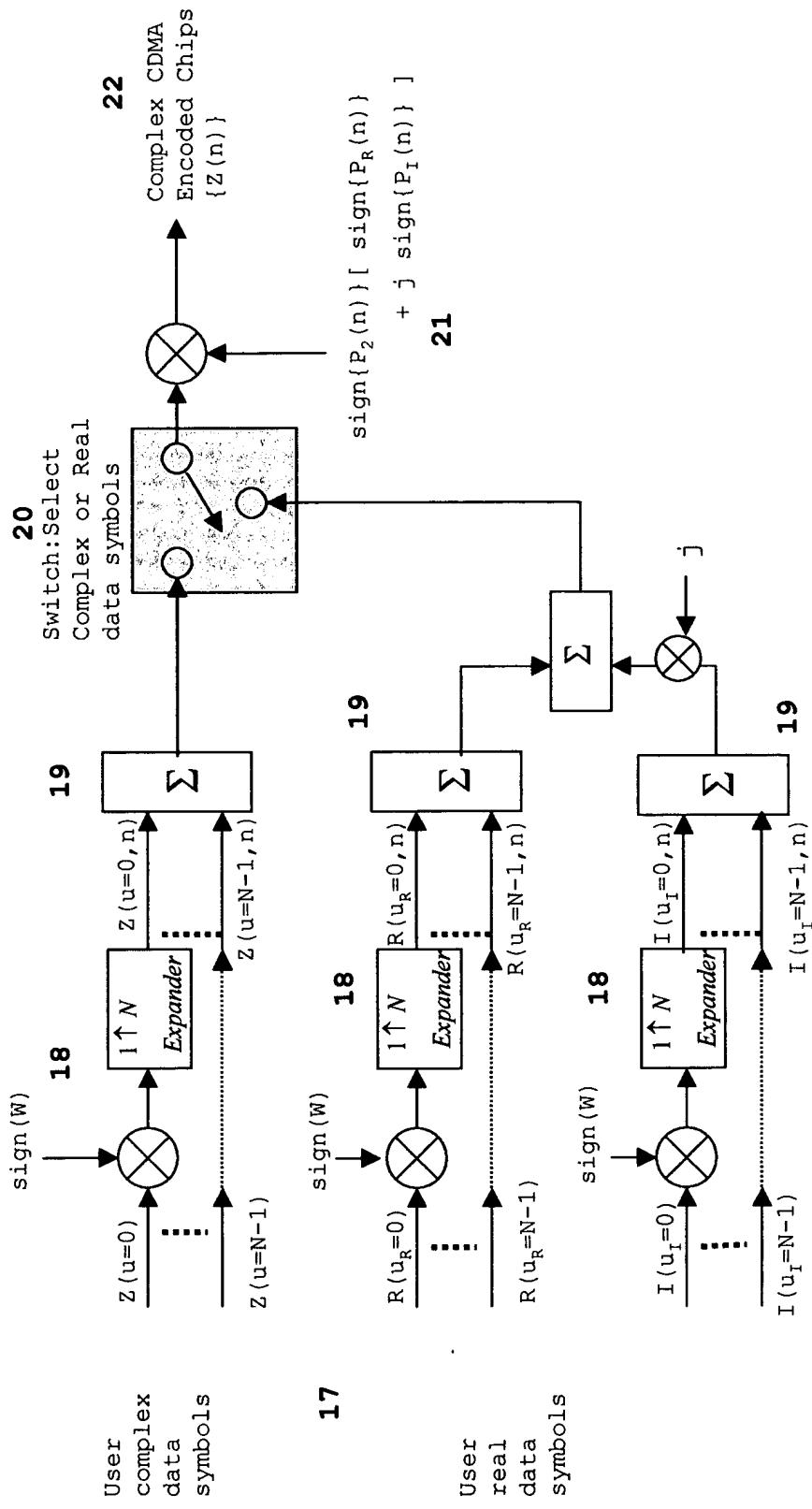
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**FIG. 1C CDMA Transmitter: Cellular Implementation**



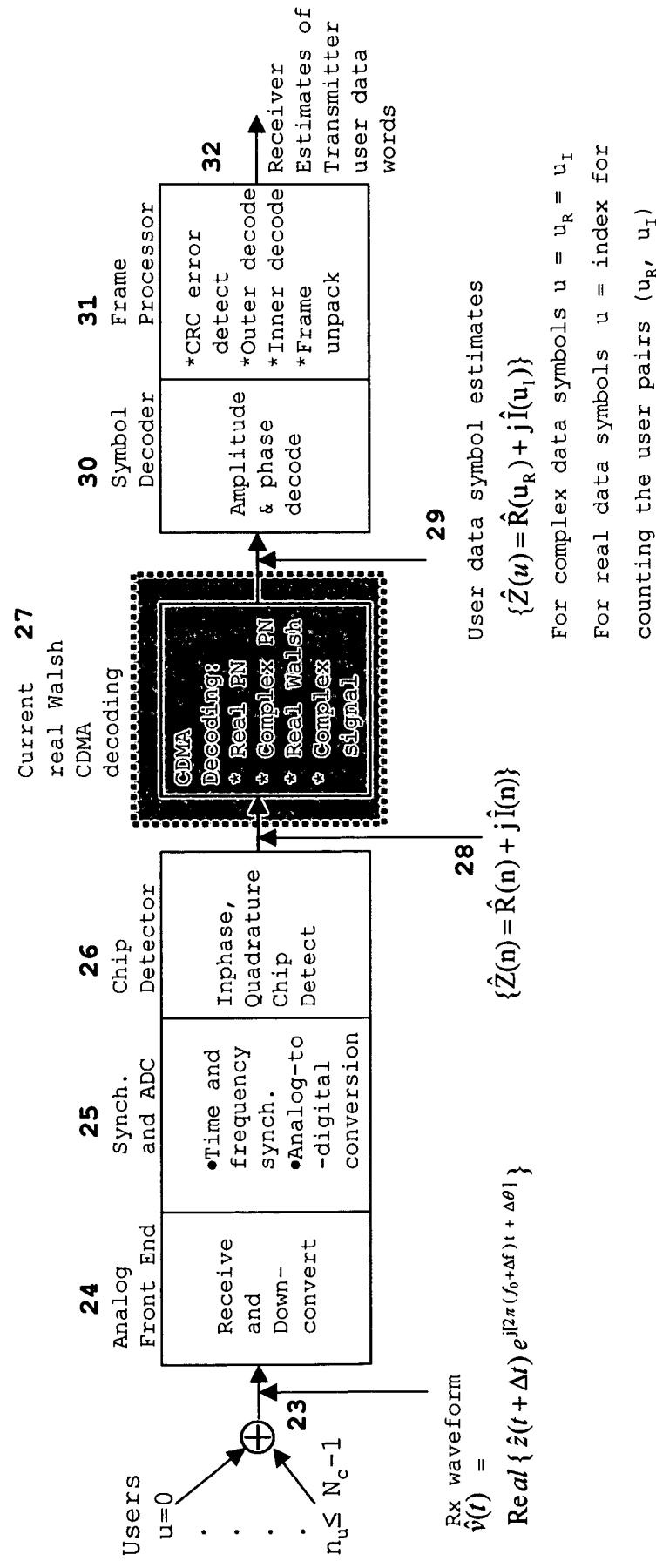


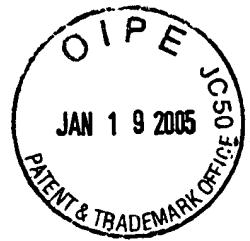
**FIG. 2 Real Walsh CDMA Encoding Implementation**



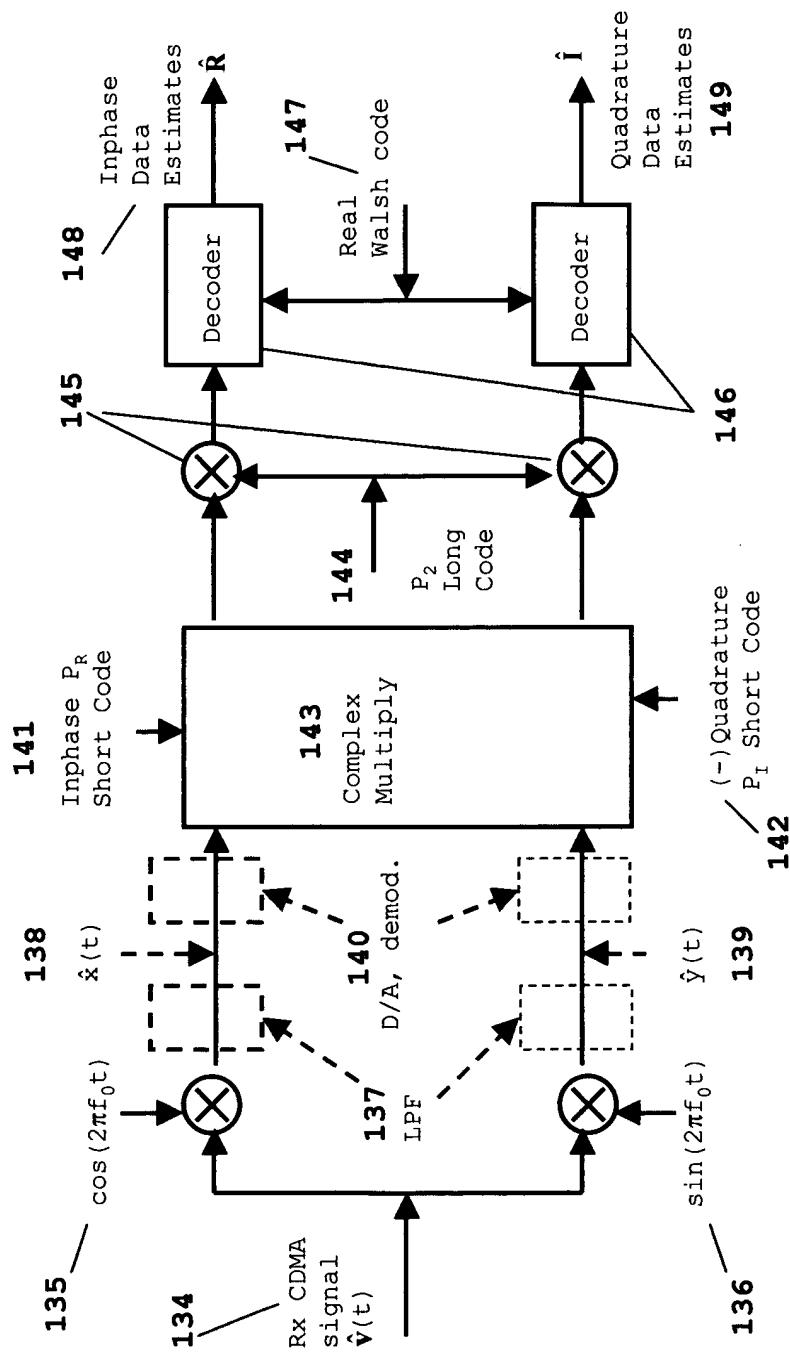


**FIG. 3A CDMA Receiver: Block Diagram**



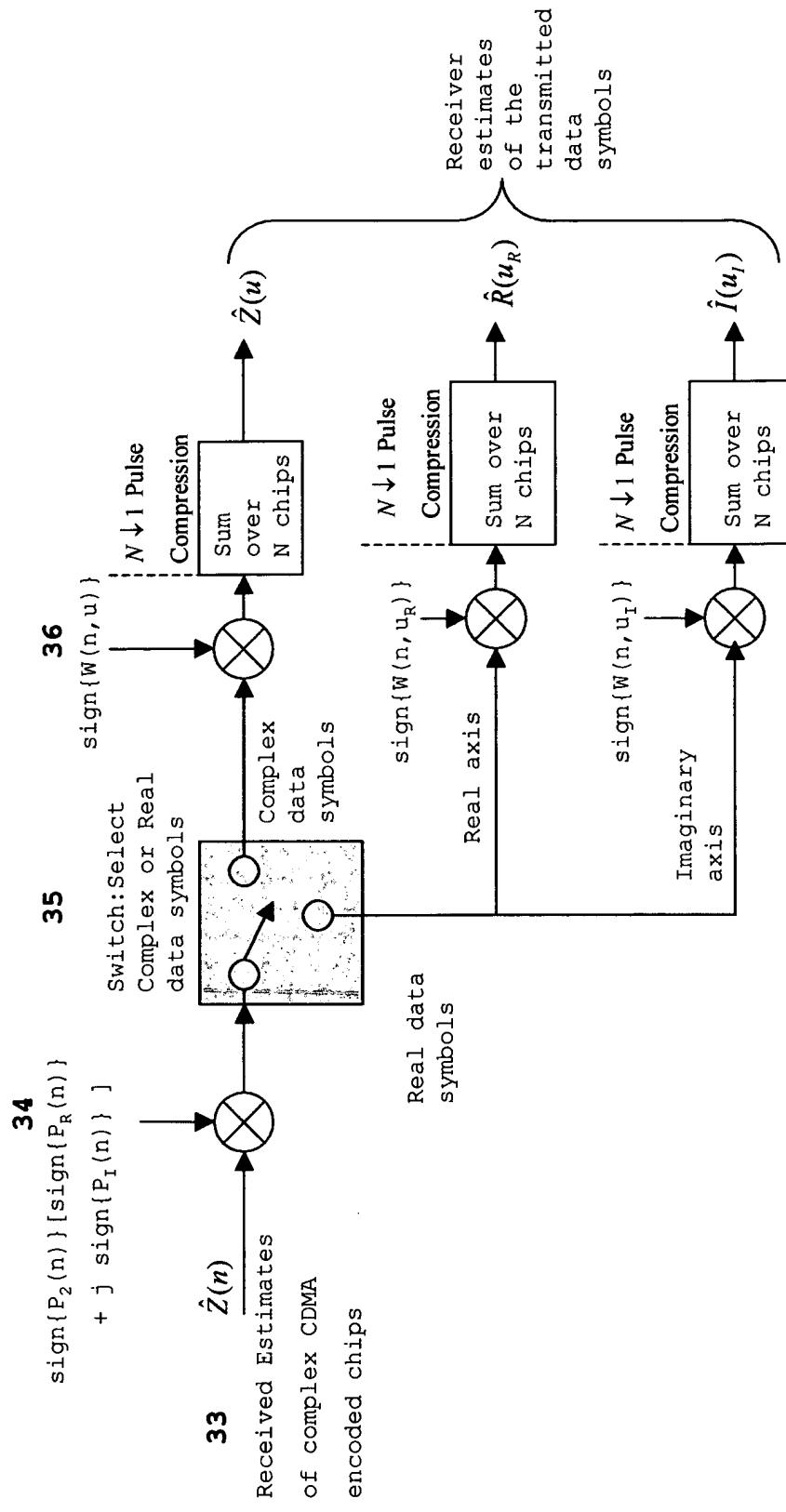


**FIG. 3B CDMA Receiver: Cellular Implementation**



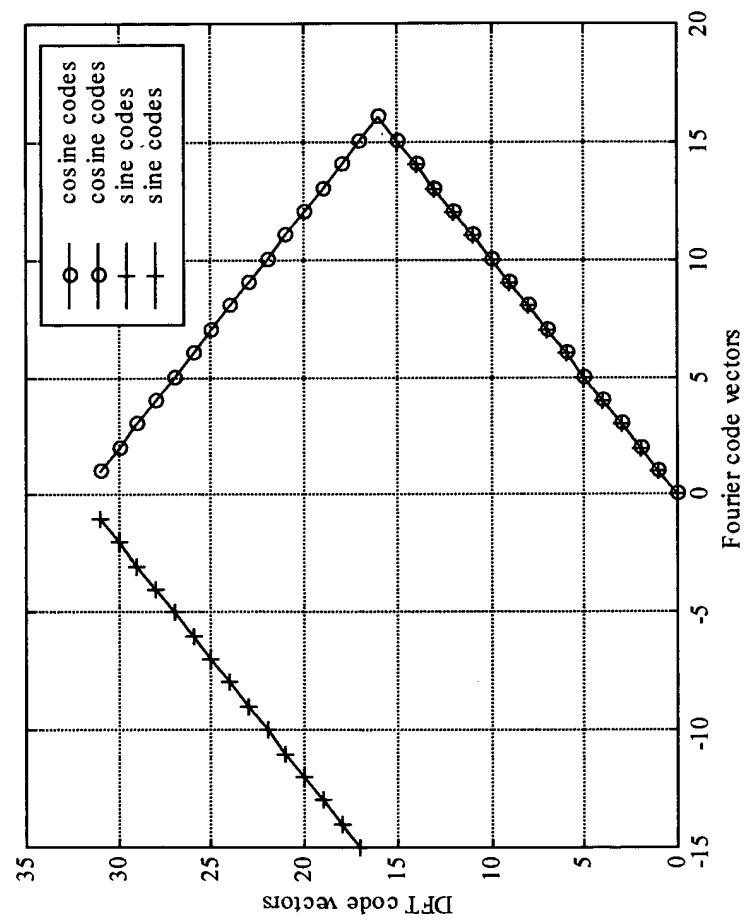


**FIG. 4 Real Walsh CDMA Decoding Implementation**



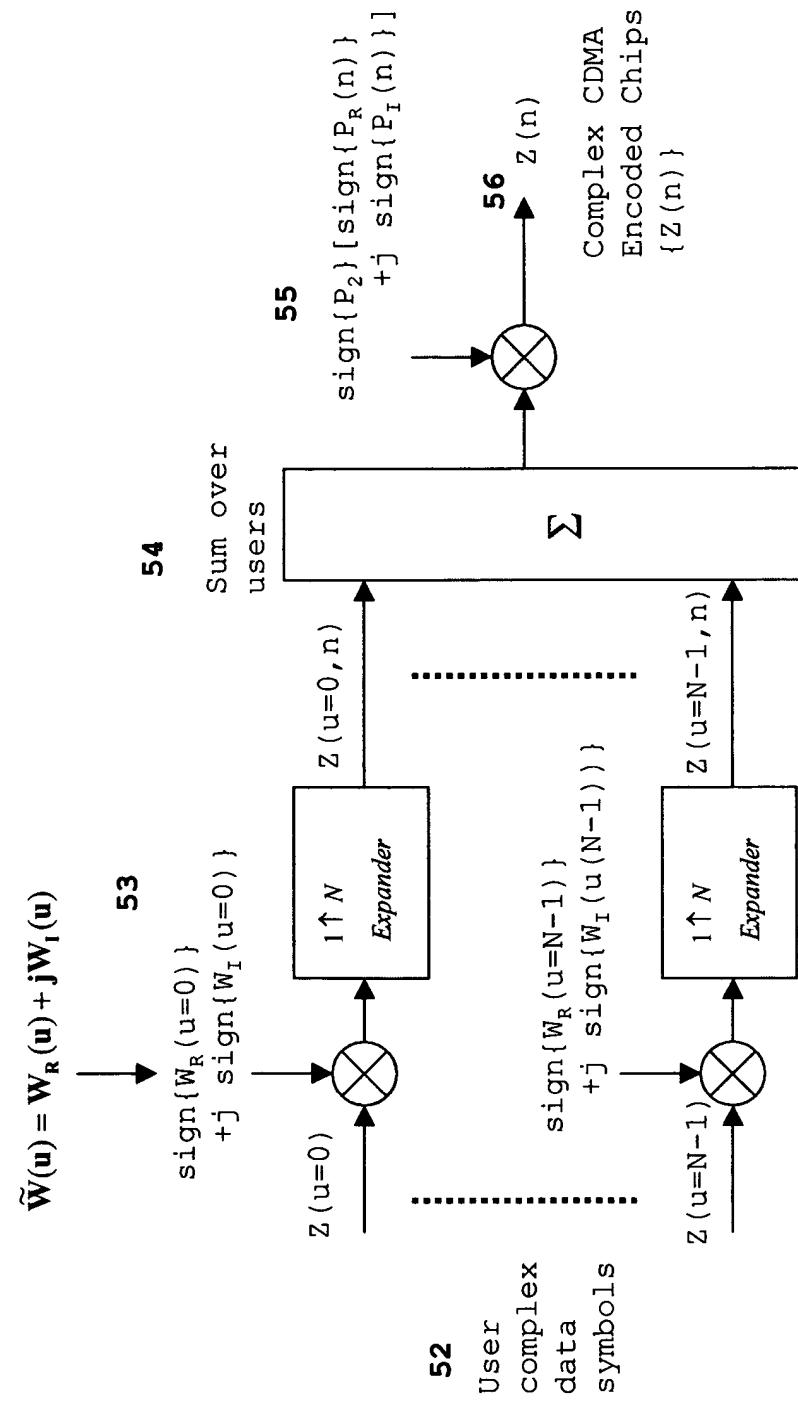


**FIG. 5 Correlation of Fourier Codes  
with DFT Codes for N=32**



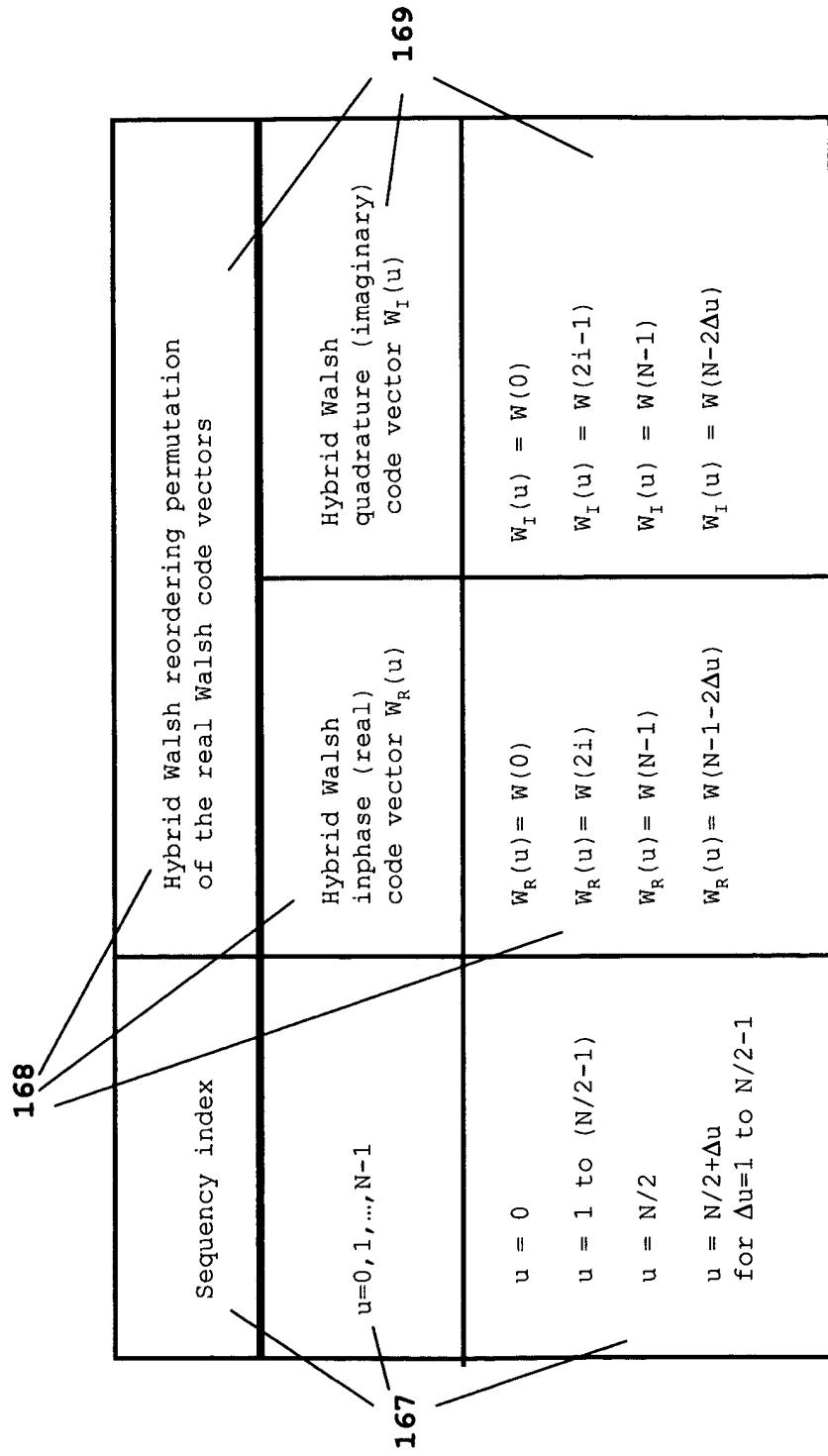


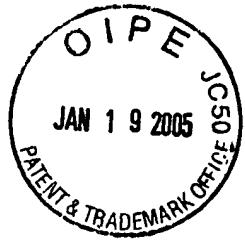
**FIG. 6A Hybrid Walsh: CDMA Encoding Implementation**



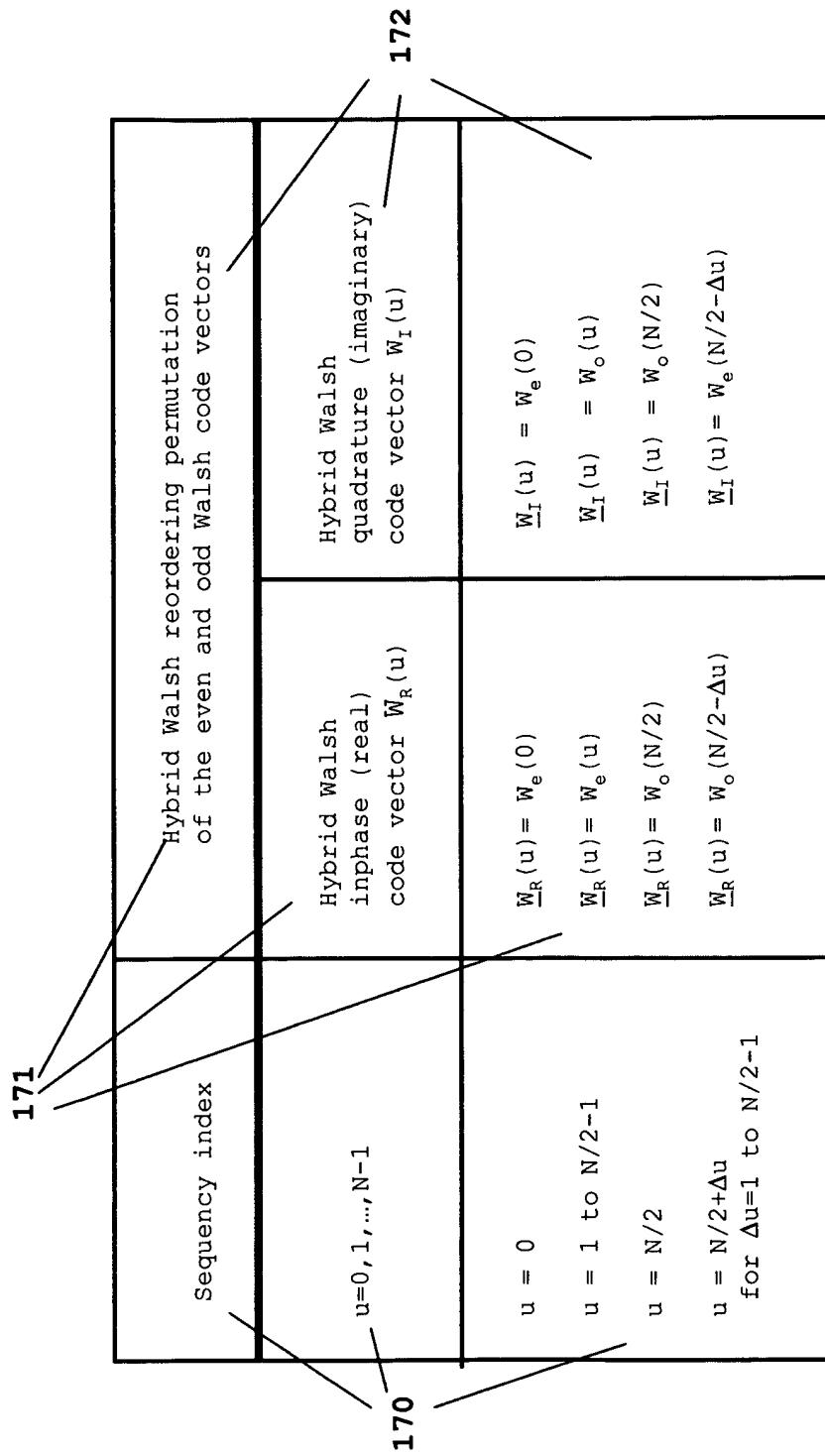


**FIG. 6B Hybrid Walsh: Implementation Algorithm**



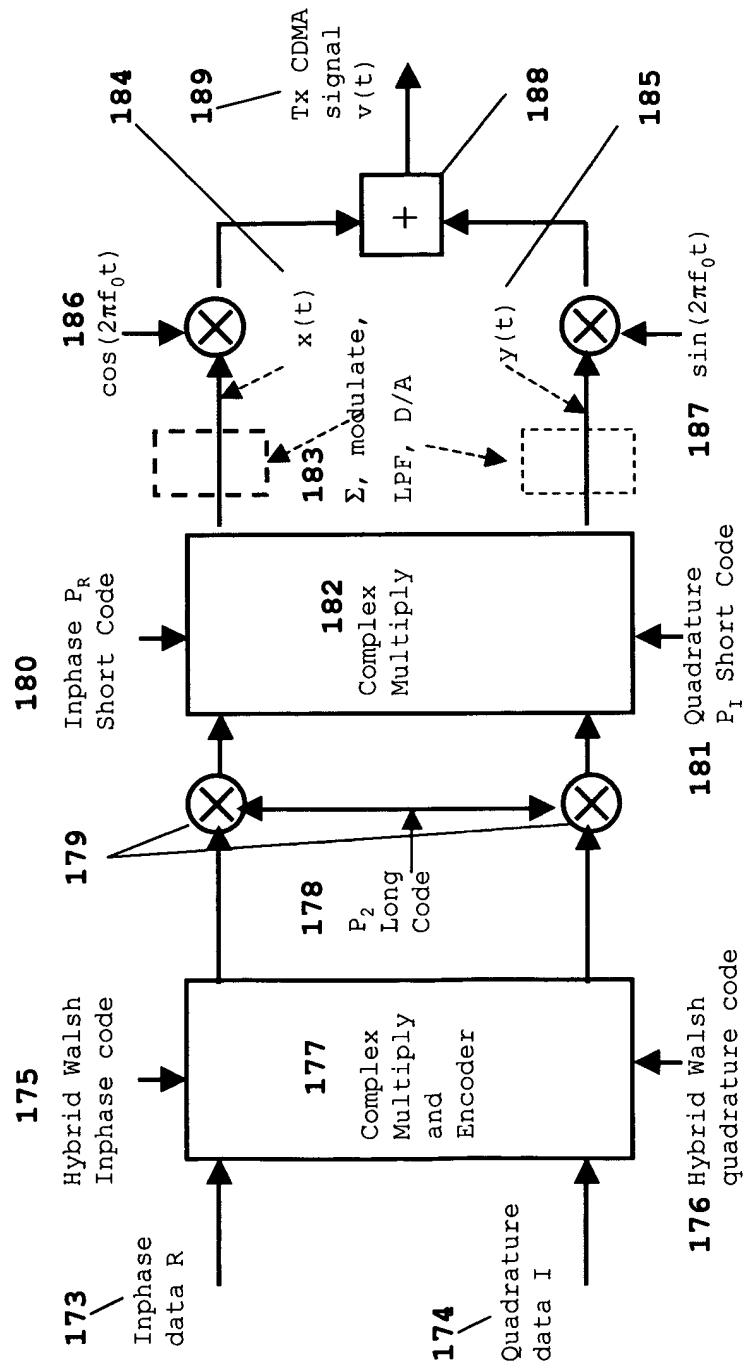


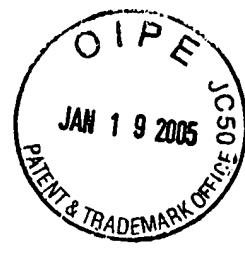
**FIG. 6C Hybrid Walsh: Implementation Algorithm  
Based on Even and Odd Real Walsh Codes**



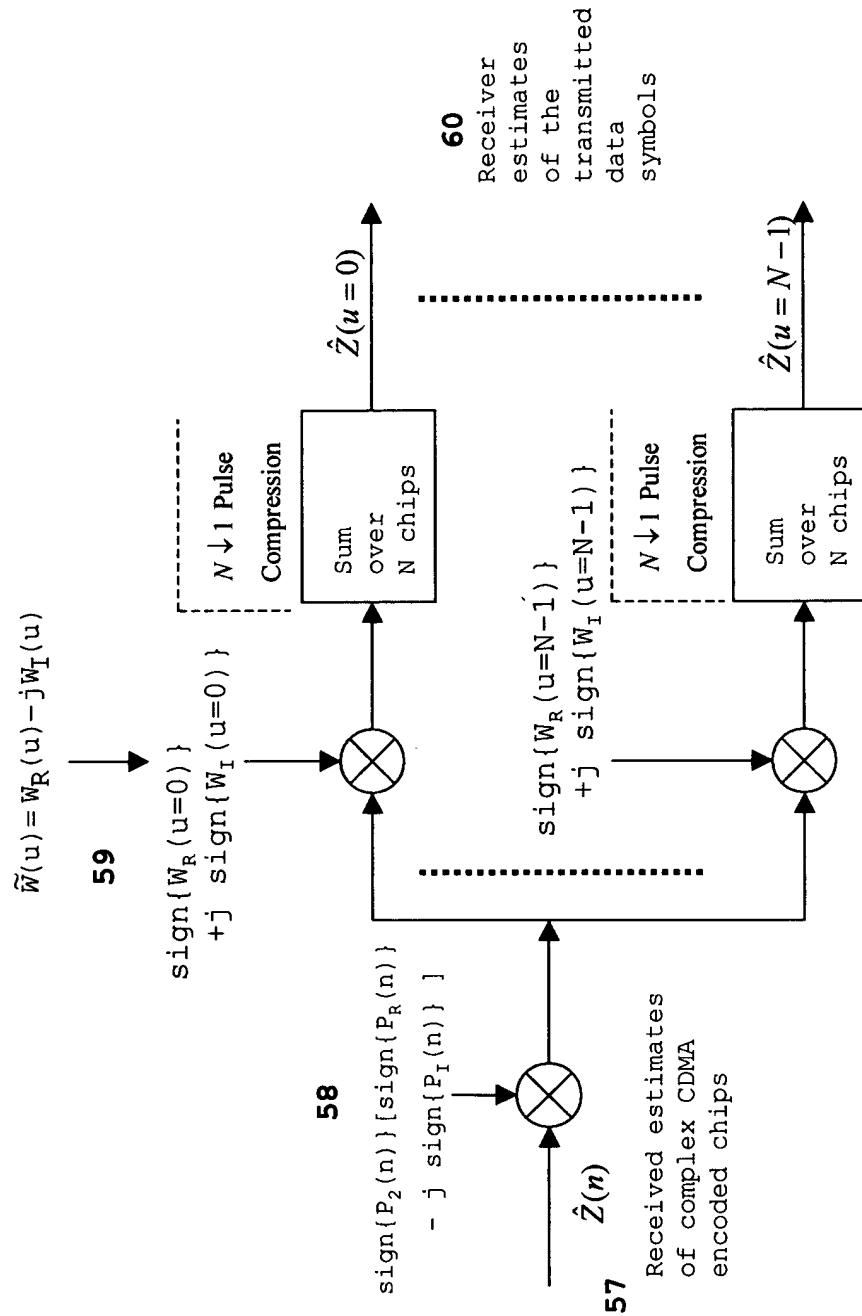


**FIG. 6D Hybrid Walsh: Cellular Transmitter Implementation**





**FIG. 7A Hybrid Walsh CDMA Decoding Implementation**





**FIG. 7B Hybrid Walsh: Cellular Receiver Implementation**

